IN THE CLAIMS:

Please amend the claims as follows:

Cancel claims 1 through 22 without prejudice or disclaimer and substitute therefore the following new claims:

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23. (New) Method for optically detecting at least one entity consisting of molecules, molecule complexes, polymers, polymeric particles, particles built up from inorganic materials, vesicular structures, cells, bacteria and virus, whereby

- the at least one entity is arranged on and/or in a substrate (60), said substrate (60) preferably being arranged on a support (61) and having a refraction-index which is different from the one of an at least one component adjacent to the substrate (60),
- the at least one entity is scanned with a measuring volume (70) using at least one device being confocal or configured for multi-photon-excitation said device consisting of a first radiation source (10) and at least one first objective (33), thereby receiving measuring values of optical parameters which are processed by means of a signal processing for characterization of the at least one entity,
- the at least one entity substantially maintains its position with respect to the substrate (60) or the support (61) or both for the duration of the obtaining the measuring values,
- before and/or during the scanning process an auxiliary focus (71) is generated by means of at least one second radiation source (11) and a second opjective (34), said auxiliary focus (71) is at least partly arranged on the interface (62) between substrate (60) and adjacent component or on another interface (62) having a defined spacial relation to said entity,

- the radiation generated by the first radiation source (10) is collimated by a first optic (33) and the radiation generated by the second radiation source (11) is collimated by a second optic (31) being different from the first optic (33),
- a retroreflection from the auxiliary focus (71) is detected by a detector (21) having a confocal arranged diaphragm (51) or by a plurality of detectors (21,22) having diaphragms (51,52) being arranged in front of and/or behind the image plane, and along the optical axis of the objective (34) generating the auxiliary focus (71), said retroreflection is used for measuring the position of the interface (62) and, thus, for indirectly positioning the measuring volume (70), and
- the position of the auxiliary focus (71) relative to the measuring volume (70) is adjusted or adjustable in a defined manner.

24. (New) Method for optically detecting at least one entity consisting of molecules, molecule complexes, polymers, polymeric particles, particles built up from inorganic materials, vesicular structures, cells, bacteria and virus, whereby
- the at least one entity is arranged on and/or in a substrate (60), said substrate (60) preferably being arranged on a support (61) having a refraction-index which is different from the one of an at least one component adjacent to the substrate (60),
- the at least one entity is scanned with a measuring volume (70) using at least one apparatus being confocal or configured for multi-photon-excitation said apparatus consisting of a first radiation source (10) and at least one objective (32), thereby receiving measuring values of optical parameters which are processed by means of a signal processing for characterization of the at least one entity,

- the at least one entity substantially maintained its position in respect to the substrate (60) and/or the support (61) for the duration of the recording,
- before and/or during the scanning process an auxiliary focus (71) is generated by means of at least one second radiation source (11) and an optic (32), said auxiliary focus (71) is at least partly arranged on the interface (62) between substrate (60) and adjacent component or on another interface (62) having a defined spacial relation to said entity,
- the radiation generated by the first radiation source (10) is collimated by a first optic (33) and the radiation generated by the second radiation source (11) is collimated by a second optic (31) being different thereto,
- a retroreflection from the auxiliary focus (71) is detected by a detector (21) having a confocal arranged diaphragm (51) or by a plurality of detectors (21,22) having diaphragms (51,52) being arranged in front of and/or behind the image plane, and along the optical axis of the objective (32) generating the auxiliary focus (71) said retroreflection is used for measuring the position of the interface (62) and, thus, for indirectly positioning the measuring volume (70), and
- the position of the auxiliary focus (71) relative to the measuring volume (70) is adjusted or adjustable in a defined manner.

25. (New) Method according to claim 23 characterized in that the extent of the confocal detected volume of the auxiliary focus (71), in particular in direction of the respective optical axes of the objectives (32,34) is smaller than the extent of the measuring volume (70).

26. (New) Method according to claim 25 characterized in that the auxiliary focus (71) for obtaining a smaller extent of the confocal detective volume of the auxiliary focus (71) is generated by a second objective (34) having a numeric aperture which is larger than the numeric aperture of the first objective (32) used for generating the measuring volume (70).

27. (New) Method according to claim 25 characterized in that for obtaining the small extent of the confocal detected volume of the auxiliary focus (71) a smaller part of the numerical aperture of a common optic or the respective optics (32,34) is used for generating the measuring volume (70) than for generating the auxiliary focus (71).

28. (New) Method according to claim 25 characterized in that for obtaining the small extent of the confocal detected volume of the auxiliary focus (71) a confocal arranged diaphragm (51) is used at the detection of the auxiliary focus (71), said diaphragm (51) having a smaller opening than a confocal arranged diaphragm (50) used at the detection of the measuring volume (70).

29. (New) Method according to claim 23 characterized in that for indirectly positioning the measuring volume (70) the position of the auxiliary focus (71) relative to the interface (62) is moved preferably periodically substantially along the optical axis of the optic (34) generating the auxiliary focus (71), the intensity of the retroreflection in dependence on the movement of the detector (21) is registered and the position of the auxiliary focus (71) is readjusted in a manner that the intensity of the retroreflection reaches its maximum.

30. (New) Method according to claim 23 characterized in that for indirectly positioning the measuring volume (70) the position of the auxiliary focus (71) relative to the interface (72) is moved both, laterally to the optical axis of the optic (34) generating the auxiliary focus (71) and axially.

31. (New) Method according to claim 29 characterized in that the amplitude of the preferably periodical movement of the auxiliary focus (71) is smaller than or equal to the axial extent of the measuring volume (70).

32. (New) Method according to claim 23 characterized in that the intensity of the retroreflection is detected by means of at least two detectors (21,22) and the position of the interface (62) is determined by means of the distribution of the intensities detected by the detectors (21,22).

33. (New) Method according to claim 23 whereby the scatter-light-intensity and/or the scatter-light-intensity in dependence on the polarization and/or the fluorescence-intensity at at least one wavelength and/or the fluorescence-intensity in dependence on the polarization and/or the fluorescence-durability and/or molecular luminosity and/or Raman-scattering and/or luminescence are detected as optical parameters.

34. (New) Method according to claim 23 whereby mineral or organic substrates (60) in particular polymeric gels, polymeric particles built up from inorganic materials, vesicular structures, cells, bacteria and virus are used.

35. (New) Method according to claim 23 characterized in that entities and/or substrates (60) selected by means of the optical parameters are separated during or after the scanning process from the other entities and/or substrates (60).

36. (New) Use of the method according to claim 23 in the research of active ingredients, in the functional analysis of combinatoric-chemical or combinatoric-biological synthesis-products in the functional genom-analysis, in the evolutive biotechnology, in the diagnostics, in the proteom-analysis or the investigation of material.

37. (New) Apparatus for performing the method according to claim 23 for optically detecting at least one entity consisting of molecules, molecule complexes, polymers, polymeric particles, particles built up from inorganic materials, vesicular structures, cells, bacteria or virus, comprising

- at least one first radiation source (10) as well as at least one device being confocal or configured for multi-photon-excitation said device comprising a first objective (32) and at least one first detector (20) for detecting measuring values from the measuring volume (70),
- at least a second radiation source (11) as well as at least one further device comprising a second objective (34) and at least one second detector (21) for detecting a retroreflection from an auxiliary focus (71), said second detector (21) having a confocal arranged diaphragm (51), or a plurality of second detectors (21,22) for detecting a retroreflection from an auxiliary focus (71), said second detectors (21,22) having diaphragms (51,52) arranged in front of and/or behind the image plane, and along the optical axis of the second objective (34) generating the auxiliary focus (71),
- at least one device for positioning measuring volume (70) and auxiliary focus (71) relative to a substrate (60),
- a device for variably positioning the auxiliary focus (71) relative to the measuring volume (70),
- a first optic (33) collimating the radiation generated by the first radiation source (10), and

- a second optic (31) being different from the first optic (33) collimating the radiation generated by the second radiation source (11).

38. Apparatus for performing the method according to claim 23 for optically detecting at least one entity comprising molecules, molecule complexes, polymers, polymeric particles, particles built up from inorganic material, vesicular structures, cells, bacteria or virus having

- at least one first radiation source (10) as well as at least one device being confocal or configured for multi-photon-excitation said device comprising an objective (32) and at least one first detector (20) for detecting measuring values from a measuring volume (70),
- at least one second radiation source (11) as well as at least one further device comprising the same objective (32) and a second detector (21) for detecting a retroreflection from an auxiliary focus (71), the second detector (21) having a confocal arranged diaphragm (51), or a plurality of second detectors (21,22) for detecting a retroreflection from an auxiliary focus (71), said second detectors (21,22) having diaphragms (51,52) arranged in front of and/or behind the image plane and along the optical axis of the objectives (32) generating the auxiliary focus (71),
- at least one device for positioning the measuring volume (70) and auxiliary focus (71) relative to the substrate (60),
- a device for relative positioning the auxiliary focus (71) relative to the measuring volume (70),
- a first optic (33) collimating the radiation generated by the first radiation source (10), and
- a second optic (31) different from the first optic (33) collimating the radiation generated by the second radiation source (11).

39. (New) Apparatus for performing the method according to claim 23 for optically detecting at least one entity consisting of molecules, molecule complexes, polymers, polymeric particles, particles built up from inorganic material, vesicular structures, cells, bacteria or virus having

- at least one first radiation source (10) as well as at least one device being confocal or made for multi-photon-excitation consisting of a first objective (32) and at least one first detector (20) for detecting measuring values from a measuring volume (70),
- at least a second radiation source (11) as well as at least one further device comprising a same objective (32) and a second detector (21) for detecting a retroreflection from an auxiliary focus (71), said second detector (21) having a confocal arranged diaphragm (51), or a plurality of second detectors (21,22) for detecting a retroreflection from an auxiliary focus (71), said second detectors (21,22) having diaphragms (51,52) arranged in front of and/or behind the image-plane and along the optical axis of the second objectives (34) generating the auxiliary focus (71),
- at least one device for positioning the measuring volume (70) and auxiliary focus (71) relative to a substrate (60),
- whereby the auxiliary focus (71) is adjusted relative to the measuring volume (70) in a defined manner,
- a first optic (33) collimating the radiation generated by the first radiation source (10), and
- a second optic (31) being different from the first optic (33) collimating the radiation generated by the second radiation source (11).

40. (New) Apparatus according to claim 37 characterized in that the device for positioning the measuring volume (70) and the auxiliary focus (71) relative to the substrate (60) comprises means for positioning the auxiliary focus (71) relative to the measuring (70).

41. (New) Apparatus according to claim 37 characterized in that the device for positioning the auxiliary focus (71) relative to the measuring volume (70) comprises means for adjusting the relative position of the objectives (32,34) to each other.

42. (New) Apparatus according to claim 37 characterized in that the device for positioning the auxiliary focus (71) relative to the measuring volume (70) comprises means for variation of the convergence of those bundles of rays that are focussed by the respective objective (32,34) for generation of the auxiliary focus (71) and the measuring volume (70).

43. (New) Use of the apparatus according to claim 37 in the research of active ingredients, in the functional analysis of combinatoric-chemical or combinatoric-biological syntheses-products, in the functional genon-analysis, in the evolutive biotechnology, in the diagnostics, in the proteon-analysis or the examining of material.